

Attorney Docket No.: ABLE-0027
Inventors: Scott et al.
Serial No.: 10/561,500
Filing Date: July 24, 2006
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This listing of the claims will replace all prior versions and listings of claims in the application:

Listing of the claims:

Claims 1-29 (canceled)

Claim 30 (currently amended): The A composition comprising a reversible pore-forming sponge toxin for the reversible formation of a membrane pore.

Claim 31 (previously presented): The composition according to claim 30, wherein the sponge toxin comprises at least one polymeric 1,3-alkylpyridinium salt (poly-APS).

Claim 32 (previously presented): The composition according to claim 30 wherein the sponge toxin is obtained from the group consisting of the sponge *Reniera sarai*, *Callyspongia ridleyi*, *Haliclona erina*, *Haliclona rubens*, *Haliclona viridis*, *Amphimedon viridis*, *Callyspongia fibrosa* and *Amphimedon compressa*.

Claim 33 (previously presented): The composition according claim 30, wherein the sponge toxin has a molecular weight of between 5 kDa and 20 kDa.

Claim 34 (previously presented): The composition according to claim 33, wherein the sponge toxin has a molecular weight of 5.5 kDa or 18.9 kDa.

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Claim 35 (previously presented): The composition according to claim 30, wherein the concentration of sponge toxin is between 0.5 ng/ml and 5.0 µg/ml.

Claim 36 (previously presented): The composition according to claim 35, wherein the concentration of sponge toxin is between 0.5 ng/ml and 0.5 µg/ml.

Claim 37 (currently amended): A method for the reversible formation of membrane pores, the method comprising the steps of:

- a) incubating the membrane in the presence of a composition according to claim 30; and
- b) removing the composition from contact with the membrane.

Claim 38 (currently amended): The method according to ~~claim 38~~ claim 37, further comprising, addition of zinc solution to attenuate the reversible formation of membrane pore.

Claim 39 (previously presented): The method according to claim 38 wherein the concentration of zinc solution is between substantially 1 to 2 mM.

Claim 40 (previously presented): The method according to claim 39, wherein the concentration of zinc is 1.5 mM.

Claim 41 (previously presented): A method for

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transfection of a macromolecule into a cell *in vitro*, the method comprising the steps of:

- a) incubating the cell in the presence of a composition comprising a sponge toxin;
- b) removing the composition from contact with the cell; and
- c) adding a macromolecule.

Claim 42 (currently amended): The method according to claim 41, wherein the macromolecule is selected from the group consisting of nucleic acid, cDNA, protein, peptide, lipid and oligonucleotide.

Claim 43 (previously presented): The method according to claim 41, wherein the cell is incubated in the presence of the composition for between 1 and 20 minutes prior to addition of the macromolecule.

Claim 44 (previously presented): The method according to claim 43 wherein the cell is incubated in the presence of the composition for 5 minutes prior to the addition of the macromolecule.

Claim 45 (previously presented): The method according to claim 42, wherein between 1.0 and 5.0 μg nucleic acid is added.

Claim 46 (previously presented): The method according to claim 45, wherein 2.5 μg nucleic acid is added.

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Claim 47 (previously presented): The method according to claim 41, wherein the cell is incubated in the presence of the composition and macromolecule and the composition and macromolecule are removed and replaced with standard media.

Claim 48 (previously presented): The method according to claim 47 wherein the cells are incubated for between 20 and 200 minutes.

Claim 49 (previously presented): The method according to claim 48 wherein the cells are incubated for 180 minutes.

Claim 50 (previously presented): A method for transfection of a macromolecule into a cell *in vivo*, the method comprising the step of:

a) incubating the cell in the presence of a composition comprising a sponge toxin and a macromolecule.

Claim 51 (currently amended): The method according to claim 50, wherein the macromolecule is selected from the group consisting of nucleic acid, cDNA, protein, peptide, lipid and oligonucleotide.

Claim 52 (previously presented): The method according to claim 51, wherein the macromolecule is the cytoskeletal protein tau.

Claim 53 (previously presented): The method according

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to claim 50 wherein the cell is a hippocampal neurone.

Claim 54 (previously presented): A model for use in the study of neurological disease or treatments thereof, the model comprising a rodent having undergone application of a composition comprising a sponge toxin, tau protein and phosphatase inhibitor to the hippocampus.

Claim 55 (previously presented): The model according to claim 54 wherein the neurological disease is Alzheimer's disease.

Claim 56 (previously presented): The model according to claim 54 wherein the rodent is a rat or a mouse.

Claim 57 (previously presented): The model according to claim 54 wherein the phosphatase inhibitor is okadaic acid.

Claim 58 (previously presented): A method of studying a neurological disease, the method comprising:

- a) applying a composition comprising a sponge toxin, tau protein and phosphatase inhibitor to the hippocampus of a rodent; and
- b) studying the effect on the rodent.

Claim 59 (previously presented): The method according to claim 58 wherein the phosphatase inhibitor is okadaic acid.

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Claim 60 (previously presented): The composition according to claim 31, wherein the sponge toxin has a molecular weight of between 5 kDa and 20 kDa.

Claim 61 (previously presented): The composition according to claim 60, wherein the sponge toxin has a molecular weight of 5.5 kDa or 18.9 kDa.

Claim 62 (previously presented): The composition according to claim 31, wherein the concentration of sponge toxin is between 0.5 ng/ml and 5.0 µg/ml.

Claim 63 (previously presented): The composition according to claim 62, wherein the concentration of sponge toxin is between 0.5 ng/ml and 0.5 µg/ml.